

Air Bari Service Manual



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1. Purpose and function of product

- The Air Bari is designed to prevent and treat pressure sores in high and very high-risk patients.
- It is suitable for use in hospitals, nursing homes and in the community.
- The Air Bari gives gentle, dynamic support to bedridden and immobile people in recumbent, supine and prone postures.
- This support is provided by a specially constructed Mattress, which comprises a series of transverse cells, which are inflated and deflated in sequence creating a series of pressure waves, which travel beneath the patient from foot to head.
- The Mattress replaces the normal hospital bed mattress.
- Air to inflate the Mattress is provided by a microprocessor controlled Power Unit.
- The Mattress is connected to the Power Unit by an umbilical, which incorporates an emergency deflation valve to allow cardiac resuscitation procedures, and also self-sealing valves, which allow the Mattress to remain inflated when disconnected.
- A solid-state pressure sensor monitors the air pressure in the Mattress continuously and the system is completely self-regulating.
- Operator controls are deliberately minimised.
- Audio and visual alarms are activated if the mains supply is disconnected, the Mattress is not fully inflated within 20 minutes of initial switch on or the Mattress pressure is too low or high. Appropriate warning messages are shown on the display panel.

A particular feature of the Air Bari is that each pressure cycle includes a zero pressure phase. This periodic elimination of pressure prevents arterial and venous capillary occlusion in the patient's underside body tissues – maintaining and stimulating the flow of blood and lymphatic fluids through these body tissues to provide essential oxygen and to remove metabolic waste products. Thus tissue is kept healthy or may be restored to health where otherwise sustained pressure would cause and/or exacerbate tissue damage.

2. Construction of product

The product consists of two major elements:

2.1. Mattress

- The Mattress consists of 18, 19 or 20 figure eight cross-section air cells manufactured from a tough heavy-duty polyurethane film. The cells are connected in sets of three, each set being sequentially inflated and deflated in turn to create the pressure wave action.
- The air cells are held in register by two inflated longitudinal formers, which pass through the individual cells along each side of the Mattress. These formers also provide a firm edge for the Mattress, which create a sense of security for the patient and assists when transferring from the bed to a chair.
- The formers and the three head-end cells are interconnected and normally remain inflated at all times. Together they provide an air reservoir, the pressure of which is continuously monitored.
- The Mattress is covered by a two-way stretch, waterproof, vapour permeable cover, which protects the Mattress as a whole from soiling by body fluids, and has a smooth surface finish to facilitate cleaning.
- The air cells and formers are connected to pneumatic tubing, which connect in turn to the umbilical connecting the Mattress to the Power Unit.

2.2. Power Unit

The Power Unit consists of the following major elements:

- Case and Control Panel
- Air compressor
- Display PCB
- Power PCB
- Solenoid valves

2.2.1. Case and Control Panel

The case is moulded in two pieces from a fire retardant, self-skinning Polyurethane foam the two halves being held together by 6 pozi head screws. The casing is fitted with rubber buffer pads, which protect both the case and the bed footboard. Two radially and longitudinally adjustable mounting arms are fitted to the rear of the case and are locked by means of clamping screws.

A carrying handle, which also serves as an air intake, is moulded into the rear moulding. The air intake is fitted internally with an open cell foam dust filter.

An integral membrane switch panel is adhered to the recessed sloping front cover. This panel contains all the functional controls for the System, except for the mains supply on/off switch, together with a green LED to indicate normal running and a red LED to indicate an alarm condition. It also houses the display panel, which provides the messages confirming the System's operational status, etc. An integral ribbon cable connects the switch panel to the Display PCB that is mounted behind the panel. A further ribbon cable (10-way in units 001 – 599, 9-way in units 600 - 1583, 10-way from units 1584 onwards) connects the Display PCB to the Power PCB. Disconnection of this cable (and the pressure sensor tubing) enables the two sections of the case to be separated during service/maintenance procedures.

A mains supply on/off switch is mounted on the sidewall of the rear body. In units 001 – 599 this is a rocker type switch. From unit 600 –1327 this is a push action switch. From unit 1328 onwards a simpler rocker type switch. All types contain an integral green LED to indicate the mains supply.

A label bearing the unit serial number, type classification and electrical rating information is affixed to the rear of the case.

2.2.2. Air Compressor

In units 001 – 1073 the compressor is essentially a small aluminium-bodied, linear electric motor – the iron- cored armature of which reciprocates in a cylinder under the action of induced magnetic force in one direction and a return spring in the other. The compressor is fitted with flap valves at inlet and outlet, automatically actuated by the air pressure in the compression chamber, such that the compressor takes in ambient air and delivers compressed air to the Mattress. In units 1074 onwards the compressor is a diaphragm type.

The compressor outlet is connected via 7mm bore silicone rubber tubing to a high efficiency air filter. In addition to filtering the output air this also acts as a reservoir, which helps to smooth pressure fluctuations in the system. In the piston type compressor the air intake is via an inlet in an integral filter housing. A pozi-head screw to permit its removal for filter replacement during servicing retains the housing. The membrane type does not have an integral filter.

The compressor has rubber mounting feet attached by screws to inserts in a sub-plate which in turn is screwed onto a fixed mounting plate which is bonded to the inside of the base of the case. This arrangement minimises the transmission of vibration and noise to the case and provides a convenient means of removing the compressor for service/maintenance. The compressor has flying lead connections fitted with a special plug for connection to the Power PCB.

2.2.3. Display PCB

The Display PCB is mounted on the rear of the case front cover. It is connected to the Membrane Switch Panel and the Power PCB by ribbon cables and to the pneumatic circuit by a 3mm bore tube.

This major components mounted on this PCB are the controlling Microprocessor, the Message Display, the Pressure Sensor, the Audible Alarm Sounder and the Pressure Range/Language Option Switch Unit.

The Microprocessor carries a label showing the software modification status of the system e.g. Version 2.20.

The Option Switch Unit incorporates multiple switches, the position of which determines the pressure settings of the system and the message display language. The settings are:

Units No. 001 – 599

Switch	1	2	3	4	
	on	on	x	x	9 minute cycle
	off	on	x	x	12 minute cycle
	on	off	x	x	15 minute cycle
	x	x	on	on	English language
	x	x	off	on	German language

Units No. 600 - 1152

Switch	1	2	3	4	Software Versions	
					2.62 (standard)	2.62 NOR
	off	on	x	x	Air Bari (L. P.)	Air Bari (L. P.)
	on	on	x	x	Air Bari (H. P.)	Air Bari (H. P.)
	x	x	on	on	English	French
	x	x	off	on	German	German

x	x	off	off	Spanish	Norwegian
x	x	on	off	Italian	Italian

(x = not critical)

Units 1153 - 1583 - Version 3.x PCB (6 position switch) and 3.xx software.

Language	S6	S5	S4	S3	S2	S1	
Czech	x	on	on	on	on	off	
German	x	on	on	off	on	on	
Italian	x	on	off	on	on	off	(x = not critical)
Spanish	x	on	off	off	on	off	
French	x	off	on	on	on	off	
Norwegian	x	off	on	off	on	off	
Portuguese	x	off	off	on	on	off	
English	x	off	off	off	on	off	

Units 1584 onwards – Version 4.xx Software, Version 4.xx PCB

Language selection switch settings

Language	SW1									
	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1
Czech	x	ON	ON	ON	ON	x	x	X	x	x
English	x	OFF	ON	ON	ON	x	x	X	x	x
German	x	ON	OFF	ON	ON	x	x	X	x	x
Spare	x	OFF	OFF	ON	ON	x	x	X	x	x
Dutch	x	ON	ON	OFF	ON	x	x	X	x	x
Italian	x	OFF	ON	OFF	ON	x	x	X	x	x
Spanish	x	ON	OFF	OFF	ON	x	x	X	x	x
Swedish	x	OFF	OFF	OFF	ON	x	x	X	x	x
French	x	ON	ON	ON	OFF	x	x	X	x	x
Norwegian	x	OFF	ON	ON	OFF	x	x	X	x	x
Portuguese	x	ON	OFF	ON	OFF	x	x	X	x	x
Danish	x	OFF	OFF	ON	OFF	x	x	X	x	x

Function selection switch settings

Function	SW1									
	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1
Low press	x	x	x	x	x	x	x	X	x	OFF
High press	x	x	x	x	x	x	x	X	x	ON
NodecE	x	x	x	x	x	x	x	X	OFF	x
Air Bari	x	x	x	x	x	x	x	X	ON	x
Normal	x	x	x	x	x	x	x	OFF	x	x
Air Plus (untimed static)	x	x	x	x	x	x	x	ON	x	x
Normal	x	x	x	x	x	x	OFF	X	x	x
BARI	x	x	x	x	x	x	ON	X	x	x
Normal	x	x	x	x	x	OFF	x	X	x	X
AUS	x	x	x	x	x	ON	x	X	x	X

(S10 is not connected)

Second service screen in Air Bari v4.xx software / 4.x PCBs

Switching the unit on with the white Alarm Cancel button depressed allows the Total System Running Hours and the Compressor running hours to be displayed – useful for service or rental records. Depressing the white button again displays the Software issue and the selected switch positions.

Software type & version

↓↓↓ ↓↓

ES4.03 123456789

SW1 110001110

↑

0=LP

1=HP

↑

0=AirPlus

1=AirSure

↑

0=Normal

1='A'

↑

0=Normal

1='BARI'

↑

0=Normal

1='AUS'

↑↑↑↑

1111 Czech

1110 English

1101 German

1100 Spare

1011 Dutch

1010 Italian

1001 Spanish

1000 Swedish

0111 French

0110 Norwegian

0101 Portuguese

0100 Danish

(1=ON, 0=OFF)

2.2.4. Power PCB

The Power PCB is mounted on the rear casing. It is connected to the mains supply via the mains lead, to the Mains Filter, the Control Solenoid Valves and the Compressor by flying leads and the Display PCB by a ribbon cable.

The major components mounted on this PCB are the Mains Lead Terminal Block, the Fuse Holders (1 amp fuses), the Mains Transformer, the Solid State Relays and the Rechargeable Battery to provide power for the alarm circuit in the event of power failure.

2.2.5. Solenoid Valves

Pneumatic control of the system is achieved through the use of 6 off 3-way valves, see pneumatic circuit diagram. The valves operate from a 230 volt 50/60 cycle supply through a diode circuit, which gives them the characteristic of a d.c. valve and hence the capacity to incorporate a quietened action. The valves are fitted with push-on plastic tubing adapters and are interconnected with 7mm bore silicone tubing. The tubing is fitted with internal stainless springs to prevent kinking.

3. Performance of Product

3.1. How the Product works

3.1.1. Introduction

The objective of the product is to relieve the pressure created under a patient when lying on a bed so that blood flow is maintained and tissue oxygenation achieved. It does this by intermittently removing the pressure from the patient by sequentially deflating the supporting air cells of the mattress. The Power Unit provides the source of energy to achieve this and also the necessary monitoring and control systems for efficient and safe operation.

In simple terms the air compressor delivers air to the solenoid valves controlling the flow of air into and out of the mattress air cells. The pressure of the air within the mattress is continuously monitored by the solid-state pressure sensor enabling the inflation pressure to be directly controlled and varied to achieve the desired comfort level.

The software based control system operates the solenoid valves to enable air to flow into, or out of, the air cells as required according to the operating mode selected. It also maintains the air pressure within the air cells at the required level and controls the action of the alarm system in the event of mains supply failure or over or under inflation pressures occurring.

3.1.2. Start Up

When the Power Unit is switched on the Compressor starts running. Air is sucked into the Compressor through Valve T and is delivered via the inlet and outlet filters to Valves P,Q and R and hence to the three sets of interlinked air cells. In parallel air is delivered directly to the two longitudinal Side Formers and to the three head-end Air Cells to which they are connected. The Display shows the message 'Please wait – Adjusting Pressure'. The Pressure Sensor monitors the pressure in the Former/Head Cell supply line and when the inflation pressure reaches 50mmHg the system is switched into its operating mode and the green 'Ready' LED is illuminated.

3.1.3. Dynamic Mode

This mode of operation and the 'Firm' comfort setting are automatically selected at the end of the initial inflation phase. The Display message shown is 'Dynamic – Comfort:Firm'.

The P Valve is energised together with the T and U valves. Instead of entraining ambient air the compressor now sucks air via Valves P and T and discharges it to the atmosphere through Valve U. Air is withdrawn from the 5 Air Cells (every third cell) connected to Valve P for a period of 80 seconds which is sufficient to empty them.

Valves T and U are then de-energised and the Compressor switched off unless the air within the remaining inflated Cells requires topping up in order to maintain their pre-set pressure. After a dwell period of 120 seconds Valve P is de-energised, the Compressor is switched on and the deflated Cells are reinflated. As all the active Cells are interconnected at this point, air also flows between the Cells as their pressure equalises. The inflation phase lasts for 100 seconds or until the pre-set pressure is reached, whichever occurs first. After the 100 seconds the Q,T and U Valves are energised and the cycle is repeated. Similarly the cycle is repeated again with the R,T and U Valves.

3.1.4. Static Mode

This mode is selected by pressing the Mode switch on the membrane panel. The Display message shown is: Static – Comfort:Firm (or other setting selected, see 3.1.5). In this state all the Solenoid Valves are de-energised and the Compressor only runs when it is necessary in order to initially achieve the pre-set pressure or to compensate for air leaks, etc. The Mode is automatically limited to a maximum time of 2 hours, after which, for reasons of clinical safety, the System switches into the Dynamic Mode.

3.1.5. Comfort Settings

The air pressure within the Cells can be varied to provide varying degrees of comfort to suit patient or clinical needs. Three settings; Firm, Medium and Soft are provided equating to nominal inflation pressures of 50,40 and 30mmHg (60,45 and 30mmHg when the High Pressure Range option is selected). Pressing the 'Comfort' switch cycles the System through the three settings in turn. The setting selected is displayed on the message panel e.g. Comfort:Medium.

If the setting selected equates to a higher pressure than that already in the Cells the System switches into the inflation phase until the pressure selected is reached. If the existing pressure is too high the System switches into the deflation phase until the required pressure reduction is achieved.

The Comfort setting is independent of the Dynamic and Static settings.

3.1.6. Maximum Inflation

This is a variant of the Static mode in which the Cell pressure is increased to a nominal value of 60mmHg (65mmHg in High Pressure option) in order to provide a rigid, stable surface when physiotherapy and other nursing procedures are being carried out.

This mode is limited to a maximum of 20 minutes although it can be extended for a further 20 minutes by pressing the Maximum Inflation switch at any point during this period. The initial display message reads: Max. Pressure – 20 min. Remain. The time counts down 20, 19, 18, etc, until at the end of 20 minutes the System automatically switches to Dynamic cycling at the previously selected Comfort setting. The Maximum Inflation mode can also be ended, at any time, by pressing the Mode switch.

As in the Static mode the Valves are de-energised and the Compressor only runs to achieve the pre-set pressure and then only to compensate for any system leaks.

3.1.7. Deflation

In this mode, selected by pressing the Alarm Cancel and Deflate switches simultaneously, the Cells are emptied by virtue of being connected to the Compressor inlet, the compressed air being exhausted to atmosphere. All the Valves are energised throughout and the Compressor runs continuously. The initial display message reads: Deflate – 20mins Remain. The time counts down 20, 19, 18, etc, until at the end of 20 minutes the System automatically switches off, the Valves are de-energised and the Compressor ceases to run. The display message changes to: Deflate Complete.

3.1.8. Head Cell Deflation

The Head Cells normally remain constantly inflated (together with the Formers) at the pressure selected by the Comfort switch.

Clinically it may be necessary to nurse patients in a prone position i.e. face down. To facilitate this it is desirable to deflate the Head Cells to create a void in front of the patient's face. This is achieved by reversing the settings of the two on/off taps fitted in the Head Cell tubing circuit.

To deflate the Head Cell first close the on/off tap fitted to the supply tube which runs along the side of the mattress. This isolates the Head Cells from the Formers. Then open the on/off tap at the free end of the tubing (situated at the end of the mattress). This opens the Head Cells to the atmosphere and the Cells deflate.

Note: The Formers must remain inflated at the Comfort setting selected as they now act as the sole reservoir monitored by the System's pressure sensor. If the pressure in the Formers is allowed to fall significantly as a result of opening the on/off taps in the wrong sequence the 'Low Pressure' Alarm would be activated.

To reinflate the Head Cells first close the end on/off tap and then open the supply line tap.

3.1.9. CPR Deflation

The CPR Valve consists of a manually operated rotary action Valve incorporating 4 individual, large bore, spring loaded, dump valves which, when opened, connect all the Cells and Formers to atmosphere achieving rapid Mattress deflation.. For convenience and accessibility the Valve is mounted in the umbilical between the Mattress and Power Unit.

Turning the red operating knob clockwise to the 'Open' position activates the Valve. As the Mattress deflates the 'Low Pressure' alarm will be activated and should be cancelled by switching the Power Unit off.

3.2. Installation

3.2.1. Installation of the Mattress

Remove the hospital mattress and make sure that the slatted base frame is free of pointed or sharp objects to avoid damaging the Mattress.

Place the Air Bari Mattress on the bed. Ensure that the removable cover is on top and that the umbilical hose is at the foot end of the bed. Fasten the Mattress to the bedframe using the straps on the base of the Mattress. The straps should not be too tight and should not interfere with the operation of the bed. They should be checked regularly.

Cover the Mattress with a loose fitting sheet.

3.2.2. Installation of the Power Unit

Hang the Power Unit onto the footboard. The mounting hooks swivel to suit the thickness of the footboard or rail. The hooks also adjust vertically with click-stop locations at 20mm intervals. The Power Unit should be supported until the correct position has been achieved and the black clamping screws firmly tightened (for convenience the clamping screw orientation can be changed by depressing the orange button and freely rotating the clamp screw arms to the optimum position).

Where space is limited or other equipment interferes, the Power Unit can also be suspended under the bed using the hooks and the stainless steel bracket (normally stored in the base of the Power Unit). Remove the bracket by unscrewing the two retaining screws and reposition it so that its arm is projecting from the back of the Case and pointing towards the two adjustable hooks. Refit the retaining screws. Position the Power Unit under the bed by hanging the bracket onto a suitable point on the bedframe, locate the adjustable hooks onto other suitable points, adjust their position so as to firmly retain the Unit and tighten the clamping screws.

3.2.3. Connecting the Umbilical

Connect the Umbilical hose to the Power Unit by inserting the 4 male probes into the female quick-connect valves. The end probe is inserted into the top valve and the other three probes are then aligned with their corresponding valves. The Head Cell/Former supply probe is physically non-interchangeable with the other 3 probes to prevent cross coupling. In addition the probes and valves are colour coded to assist. When they are correctly connected an audible 'click' will be heard.

3.2.4. Electrical Supply Hose

Remove the mains cable from its storage housing in the base of the Power Unit by rotating the two retaining arms so that the cable is no longer restrained and plug into a suitable 230v mains socket. Any surplus cable can be rewound and stored within the Power Unit.

3.2.5. Switch On

Switch the Power Unit using the mains on/off switch. The message 'Please Wait – Setting Pressure' appears on the display and remains until the Mattress is fully inflated. The green 'Ready' LED is illuminated showing that the System is now available for use.

Although the patient can be positioned at any time, it is preferable that this should be done with the 'Static' mode selected since this ensures a stable surface. The Systems automatically compensates for the patient's weight and maintains a constant pressure within the Air Cells.

4. Maintenance Procedures

4.1. Safety

Only qualified electricians, trained or formally approved by Rober Ltd. in the operation and maintenance of Rober products may carry out maintenance, modification or repair work on Rober Power Units.

Unqualified personnel attempting to work on Rober Power Units risk serious injury to themselves and others, and possibly death by electrocution.

4.2. Cleaning Procedures

WARNING:

- Before cleaning the System make sure that the Power Unit is disconnected from the mains electricity supply.
- Do not immerse the Power Unit in water or other fluids.
- Do not autoclave, nor use Phenol for cleaning.
- Do wash hands before commencing the cleaning process. Don appropriate protective clothing such as gloves, apron and a mask. Ensure all work surfaces are cleaned before and after contact with the mattress.

4.2.1. Cleaning the Mattress

1. With cover left on the Mattress disconnect the Mattress from the Power Unit.
2. Clean the surface of the wash down table with Hypochlorite solution or equivalent disinfectant.
3. Wash Mattress top using hot water (60 degrees C) containing detergent – dry with paper towel.
4. Fold Mattress in half, from head to foot end, clean table and the exposed bottom half of Mattress. Dry with paper towel.
5. Invert folded mattress to top half of table, clean table and the exposed half of Mattress. Dry with paper towel.
6. Repeat 3 to 5 using Hypochlorite solution 1,000 parts per million available chlorine.
7. Using suitable brush, hot water, detergent and Hypochlorite solution, clean Umbilical and CPR Valve. Dry with paper towel.
8. If required, the Mattress Cover may be removed and machine-washed at a temperature of 90 degrees C, for not less than 10 minutes. The individual Air Cells can be wiped down with established disinfectants.
9. The Mattress Cover may be sterilised using ETO or Draeger processes.

4.2.2. Cleaning the Power Unit

The Power Unit can be cleaned by wiping with a cloth dampened with a detergent solution, Hypochlorite solution or by sterilising using ETO or Draeger processes.

4.3. Routine Maintenance Procedures

Notes:

- It is recommended that the Air Bari be part of a planned preventive maintenance programme.
- To prevent damage, normal electrostatic control procedures must be observed when working on the Power Unit.
- Electrical safety checks must be carried out on completion of any repair or routine maintenance.

4.3.1. Power Unit – General

1. Remove any accumulation of dust from outside and inside the unit, using a small portable vacuum cleaner or similar. Replace the Air Inlet Filter.
2. Check the security of the wiring and tightness of screws and integrity of component mounting – rectify as necessary.
3. Switch on the power supply.
4. Check that the mains supply on/off LED is illuminated and that the display message reads: 'Please Wait – Adjusting Pressure'.
5. Check that the Compressor is running.
6. Check all pneumatic connections for air leaks and rectify as necessary.
7. Check pneumatic tubing for hardening or cracking and replace as necessary.

4.3.2. Compressor (Piston Type pre N1074S)

Clean and service as follows:

1. Remove the 4 off M4 pozi hd. Screws retaining the Compressor Plate and ease the Compressor forward to gain access to the inlet filter housing retaining screw. Remove the cover and replace the inlet filter. Refit the housing and relocate the Compressor. Apply Loctite 424 to the retaining screws and refit.
2. Remove the inline Air Filter and switch the Unit on. Check the airflow is at least 20 litres/min. If this minimum flow is not achieved the Compressor should be replaced and returned for service.
3. Replace the inline Air Filter and reconnect the tubing.

The Membrane Compressor cannot be serviced.

4.3.3. Solenoid Valves

1. Disconnect the P valve from the Power PCB and connect it to the mains supply via the Solenoid Test Unit. Check the action of the Valve as mains is applied. Repeat for the Q, R, S, T and U valves. Replace as necessary.

4.3.4. Power PCB and Display PCB

1. To prevent damage, normal electrostatic control procedures must be observed when working on the PCBs.
2. No repairs can be carried out on site. In the event of suspect faults the PCBs must be replaced and returned for repair.

4.3.5. Mattress

1. Check Mattress visually for obvious signs of wear/specific damage.
2. Connect the Mattress to the Power Unit and run the System.
3. Check Mattress for any leaks, particularly at tubing connections, and rectify as necessary. Leaking Air Cells may be replaced individually.

4.3.6. Operation

1. Connect Mattress and Power Unit. Switch on and check that all the Mattress Cells and both Formers inflate. If not, check that the CPR Valve and the head cell line end on/off tap are both fully closed. Check that the Display message reads 'Please Wait – Adjusting Pressure'.
2. Check that the Power Unit switches into the dynamic mode at 50mmHg (60 mmHg in High Pressure option), the green 'Ready' LED is illuminated and that the Display message now reads: 'Dynamic – Comfort:Firm'.
3. Check that the 3 sets of Cells are deflated in sequence.

4. Select the Medium 'Comfort' setting and check that the Display shows 'Comfort:Medium'. Check that the inflation pressure is now 40mmHg (45mmHg in High Pressure option).
5. Select the Soft 'Comfort' Setting and check that the Display shows 'Comfort:Soft'. Check that the inflation pressure is now 30mmHg.
6. Select the 'Maximum Inflation' mode. Check that all Cells are inflated. Check that the Display reads: Max. Pressure – 20 Min. Remain and that the inflation pressure increases to 60mmHg (65mmHg in High Pressure option). Check the time on the Display counts down 29, 19, 18, etc.
7. Select the 'Static' mode. Check that all Cells are inflated and that the Display reads: 'Static – Comfort: Firm' (or other comfort setting selected).
8. Open the CPR Valve and allow the Mattress to deflate. Check that the audio/visual alarms are activated and that the message: 'Low Pressure' is displayed. Close the CPR Valve, cancel the alarms and switch the Power Unit on.
9. Disconnect the Power Unit from the mains supply. Check that the audio/visual alarms are activated and the message: 'Mains Failure' is displayed. Cancel the alarms and reconnect to the supply.
10. Select the 'Deflation' mode. Check that the message: 'Deflate – 20 Min. Remain' is displayed. Check that all the Cells and the Formers are deflating and that the time on the Display counts down 20, 19, 18, etc.

5. Technical Data

5.1. General

Air Bari complies with EN 60601-1: 1990 + A1: 1993

5.2. Power Unit

Serial Number	On rear Label
Electrical Supply	230 volt, 50 Hz
Power Consumption	Max – 100 watts
Fuses	2 x 1 amp (internal)
Compressor Rating	24 litres/minute at 0.01 MPa
Protection against shock	Class II
Class of Equipment	Class B
Noise Level	Approx. 30 dB(A)
Dimensions	480 x 225 x 130
Weight	6.8 kg
Service Interval	12 months

5.3. Mattress

Serial Number	Internal, at foot end
Number of Air Cells	18, 19 or 20
Dimensions	1900 x 870 x 250 (18-cell Nominal)
Weight	8.2 kg

6. Helpline

Should you require any further information or assistance with regard to the maintenance or repair of the Air Bari, please telephone (44) 1371 874287, and our Service Department will be pleased to help.

7. Figures – Index

7.1. Modification States

7.2. Air Bari Mattress – Exploded View

7.3. Air Bari Mattress – Parts List

7.4. Power Unit – Exploded View

7.5. Power Unit – Parts List

7.6. Air Bari – Electrical Block Diagram

7.7. Air Bari – Pneumatic Block Diagram

Mod. No.	Modification	Serial No.
1	Non-interchangeable Q.C. (Sensor)	N126S
2	CPR Valve in Umbilical	N126S
3	Solenoid Valve, Version 3268	N126S
4	Software, Version 1.50	N126S
5	Coplexal tubing in mattress	N188S
6	Software, Version 1.52	N299S
7	Solenoid Valve, Version E614	N302S
8	Software, Version 1.52HP (Optional)	N523S
9	Zippered Mattress Cover	N523S
10	Push action Mains Switch	N600S
11	Software, Version 2.20	N600S
12	Mk 2 CPU & PSU PCBs	N600S
13	Head Cell access zip added	N731S
14	2-pole on/off switch	N764S
15	Software, Version 2.30	N754S
16	Software, Version 2.40	N774S
17	Varitronic Display	N825S
18	Mains Switch aperture	N877S
19	EMC (PCB revisions)	N888S
20	Female Q.C. Valve, NRV deleted	N916S
21	Software, Version 2.62	N901S
22	Air Cell with Halkey Roberts inlet	N981S
23	'Turbo' bulge Front Cover	N1053S
24	Diaphragm Compressor	N1074S
25	Software, Version 3.02	N1074S
26	Software, Version 3.03	N1288S
27	'A' Type rocker action on/off switch	N1328S

Figure 7.1 Modification States

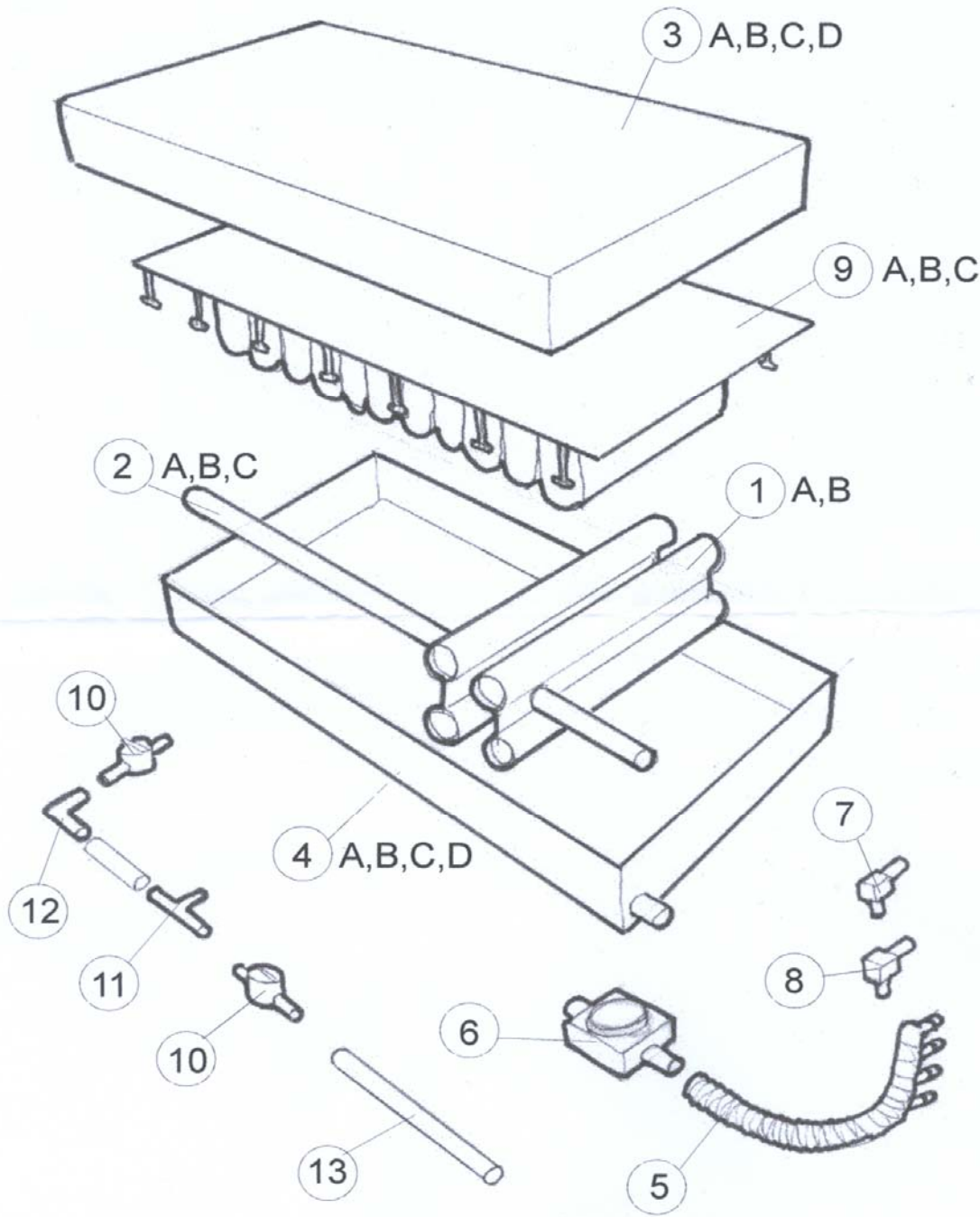


Figure 7.2 Air Bari Mattress – Exploded View

Item	Name	Part No	Notes
1	Air Cell	MS0201A	900 Width
		MS0201B	820 Width
2	Former (Pair)	MS0301A	18 Cell Type
		MS0301B	19 Cell Type
		MS0301C	20 Cell Type
3	Stretch Cover	MS0501A	18 Cell, Stud
		MS0501B	18 Cell, Zip
		MS0501C	19 Cell, 820 Width, Zip
		MS0501D	20 Cell, Zip
4	Base	MS0601A	18 Cell, Stud
		MS0601B	18 Cell, Zip
		MS0601C	19 Cell, 820 Width, Zip
		MS0601D	20 Cell, Zip
5	Umbilical Sleeve	MS0701	
6	CPR Valve	CPR0001A	
7	Elbow (Large)	MS0801	
8	Elbow(Small)	MS0901	
9	Cell Retainer	MS1001A	18 Cell Type
		MS1001B	19 Cell Type
		MS1001C	20 Cell Type
10	On/Off Tap	MS1301	
11	Tee	MS1401	
12	Elbow	MS1501	
13	Tubing (10 bore)	MS1601	

Figure 7.3 Air Bari Mattress – Parts List

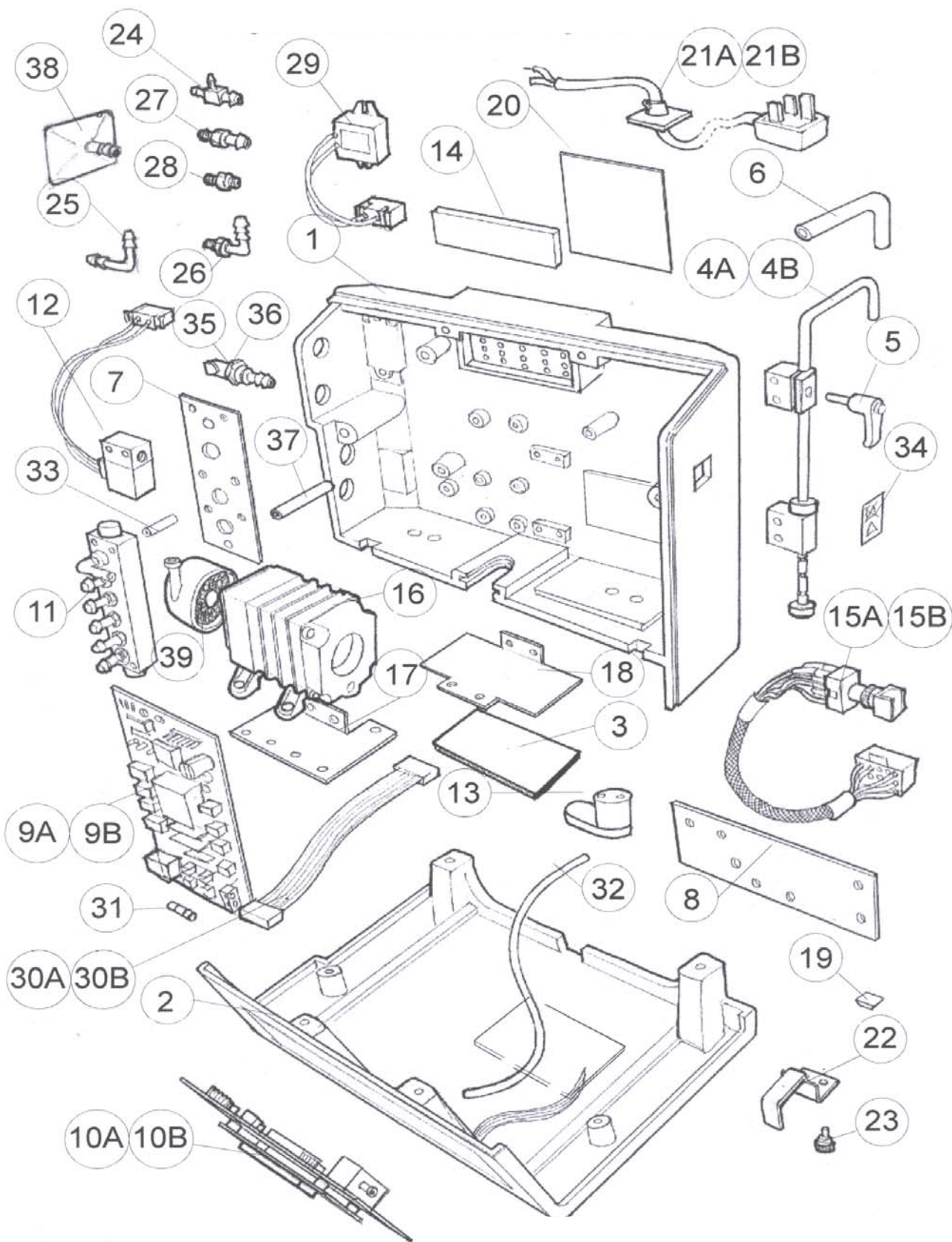


Figure 7.4 Power Unit – Exploded View

Please note: "S/A" means sub-assembly

Item	Name	Part No.	Notes
1	Case S/A	S 0103	With acoustic pad, compressor mount pad, compressor mount, cable pivot S/A, feet, window
2	Cover/membrane panel S/A	S 0401	With acoustic pad, feet, window
3	Compressor mount/pad S/A	N/A	See item 1
4A	Bedhook S/A – right hand	S 0501 R	
4B	Bedhook S/A – left hand	S 0501 L	
5	Bedhook clamp lever	S 2601	
6	Bedhook cover tube	S 7004	
7	Valve plate 1	S 0901	
8	Valve plate 2	S 1001	
9A	Power PCB – type V1	S 6801 A	See note on PCB to identify
9B	Power PCB – type V2	S 6801B	See note on PCB to identify
10A	Display S/A – type V1	S 6701 A	See note on PCB to identify
10B	Display S/A – type V2	S 6701 B	See note on PCB to identify
11	Manifold S/A	S 1301	Including connectors
12	Valve	N 1701	With lead and electrical plug, excluding pipe fittings
13	Cable pivot S/A	S 1801	
14	Primary Air Filter	N 2001	Press fit in case
15A	Mains Switch – type V1	N 2401 A	Rocker type switch
15B	Mains Switch – type V2	N 2401 B	Push-button switch
16	Compressor	S 2201	Nitto AC 0201
17	Compressor adaptor plate	S 2501	
18	Compressor mount	S 0301	Inc. item 3, compressor mount pad
19	Foot	N 3801	Self-adhesive pad
20	Rear decal	S 3901	Self-adhesive on case (identified by distributor logo)
21A	Mains cable – type A	N 5001 A	UK mains plug
21B	Mains cable – type B	N 5001 B	European mains plug
22	Rear bracket	S 5101	Stored in cable recess
23	Rear bracket fix screw	F 1	
24	Pressure sensor "T"	N 5601	
25	Elbow	N 2601	Barb type fitting , 1/8"NPT
26	Compressor outlet elbow	S 5201	1/4" BSP on one tube, barb fitting on other tube
27	Straight connector	N 5401	1/8"NTP to barb fitting
28	Straight connector – short type	N 5401 A	1/8" NTP to short barb fitting
29	Mains filter	N 5301	
30A	Flat cable – type V1	S 6601 A	10 way
30B	Flat cable – type V2	S 6601 B	9 way
31	Fuse	N 6107	1 amp fuse, fitted on Power PCB
32	Flex tube – "T" to pressure sensor	S 7003	
33	Valve spacer	S 7101	
34	Warning label	S 7202	
35	Connector – check type	N 2801	3 off – larger size
36	Connector – open type	N 2901	1 off – smaller size
37	Valve plate 1 support	F 18	Pair: different lengths
38	Inline air filter	S 6401	
39	Compressor filter	S 8101	Inside compressor inlet moulding
40	Complete fixings kit	N/A	
41	Flexible plastic tubing	S 7901	10m length, to be cut to suit specific pipes

Figure 7.5 Power Unit – Parts List

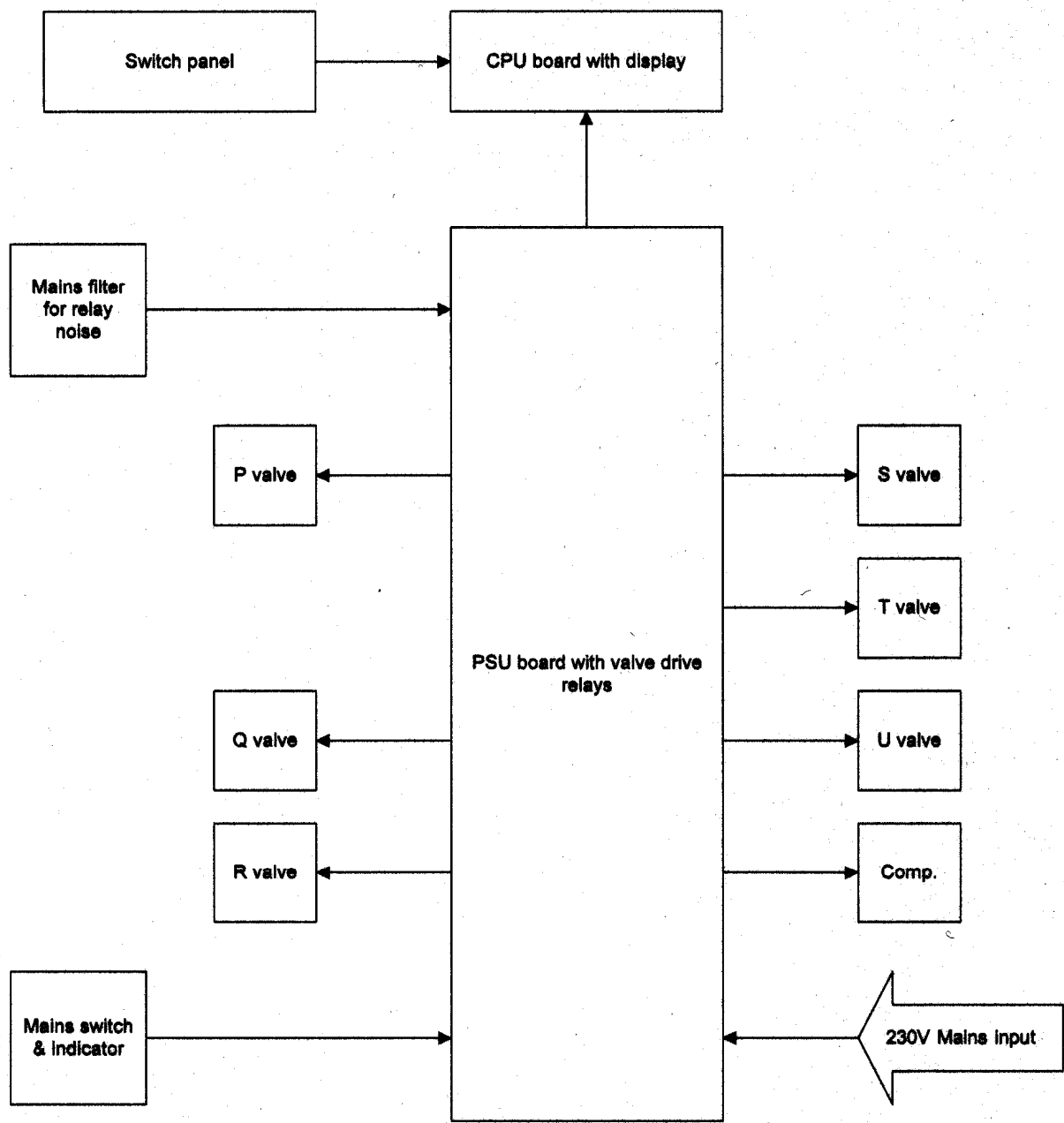


Figure 7.6 Air Bari – Electrical Block Diagram

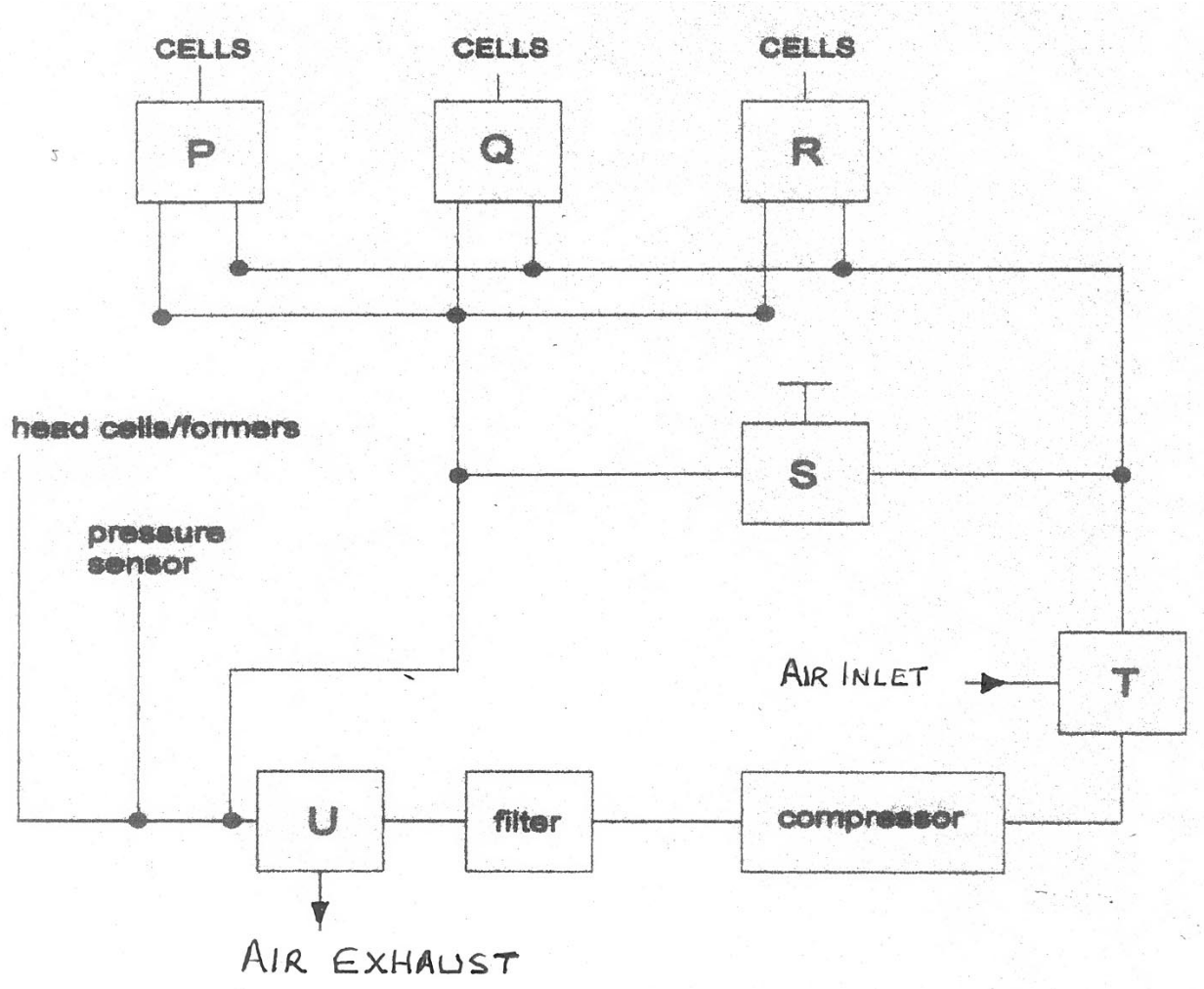


Figure 7.7 Air Bari – Pneumatic Block Diagram

8. Supplier Address

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